What is claimed is:

1. A method of forming a superconductive device, comprising:
cleaning a substrate having a dimension ratio of not less than about 10^2, the cleaning including immersing the substrate in a fluid medium and subjecting the substrate to mechanical waves in the fluid medium; and
depositing a superconductor layer to overlie the substrate.

2. The method of claim 1, wherein the fluid medium comprises water.

3. The method of claim 1, wherein the mechanical waves comprise sound waves.

4. The method of claim 3, wherein the sound waves are ultrasound waves, having a frequency not less than about 20 kHz.

5. The method of claim 4, wherein the sound waves have a frequency not less than about 100 kHz.

6. The method of claim 4, wherein the sound waves have a frequency not less than about 200 kHz.

7. The method of claim 1, wherein the substrate is translated through the fluid medium in a reel-to-reel process.

8. The method of claim 7, wherein the substrate is translated continuously through the fluid medium while subjecting the substrate to the mechanical waves.

9. The method of claim 1, wherein the substrate is translated through the fluid medium at a rate of at least 2 inches/minute.

10. The method of claim 1, wherein the substrate is translated through the fluid medium at a rate of at least 10 inches/minute.

11. The method of claim 1, further comprising a step of polishing the substrate prior to cleaning.

12. The method of claim 11, wherein polishing includes reducing a surface roughness of at least one side of the substrate through a series of successive polishing operations.

13. The method of claim 11, wherein polishing is carried out by contacting the substrate with an abrasive slurry, and applying a force against the substrate to effect material removal.

14. The method of claim 1, further comprising a step of executing a high pressure rinse prior to cleaning.

15. The method of claim 1, further comprising exposing the substrate to an annealing step after cleaning.

16. The method of claim 15, wherein annealing is carried out at a temperature of at least 400°C.

17. The method of claim 15, wherein annealing is carried out in a non-oxidizing environment.

18. The method of claim 17, wherein the non-oxidizing environment is a reducing environment, containing a reducing gaseous component.

19. The method of claim 17, wherein the non-oxidizing environment comprises an non-reactive gas.

20. The method of claim 15, wherein the annealing is effective to reduce defects along a surface of the substrate.

21. The method of claim 15, wherein the annealing is effective to remove impurities along a surface of the substrate.

22. The method of claim 1, further comprising a step of plasma treatment after cleaning.

23. The method of claim 22, wherein the plasma treatment is effective to remove impurities along a surface of the substrate.

24. The method of claim 1, further comprising depositing a buffer layer overlying the substrate, prior to depositing the superconductor layer.

25. The method of claim 24, wherein the buffer layer includes at least one film that is biaxially textured.

26. The method of claim 25, wherein the biaxially textured layer film is formed by an IBAD process.

27. The method of claim 1, wherein the superconductor layer has a Tc not less than about 77K.

28. The method of claim 27, wherein the superconductor layer comprises YBCO.

29. The method of claim 1, further comprising depositing a stabilizer layer overlying the superconductor layer.

30. The method of claim 1, wherein the superconductive device is a superconductive tape.

31. The method of claim 1, wherein the superconductive device is an electric power component incorporating a superconductive tape comprising said substrate and superconductor layer.

32. The method of claim 1, wherein the substrate has first and second opposite major surfaces, at least the first opposite major surface being polycrystalline and randomly textured, the first opposite major surface being directly exposed to the cleaning medium during cleaning.

33. The method of claim 1, wherein the superconductor layer overlies the first major surface.

34. A method of forming a superconductive device, comprising:

annealing a substrate having a dimension ratio of not less than about 10^2; and

depositing a superconductor layer to overlie the substrate.

35. The method of claim 34, wherein the substrate is annealed in an uncoated form, free of deposited layers.

36. A method of forming a superconductive device, comprising:

providing a substrate having a dimension ratio of not less than about 10^2 and having first and second opposite major surfaces, at least the first opposite major surface being polycrystalline and randomly textured;

subjecting the first opposite major surface to ion treatment ; and

depositing a superconductor layer to overlie the first opposite major surface.

37. The method of claim 36, wherein ion treatment is a plasma treatment.

38. A method for treating a substrate for a superconductive device, comprising:

polishing the substrate, the substrate having a dimension ratio of not less than about 10^2;

cleaning the substrate, cleaning including immersing the substrate in a fluid medium and subjecting the substrate to mechanical waves in the fluid medium;

annealing the substrate; and

subjecting the substrate to ion treatment.